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Behind the headlines

Are the changes to higher education funding in England cost-effective?

London Economics

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Foreword

This is the second in the *Behind the Headlines* series of pamphlets published by the university think-tank million+ in a joint venture with London Economics focusing on funding regimes for higher education and student support.

The first pamphlet, *What's the Value of a UK Degree?* established conclusively that higher education remains an excellent investment for individuals, the Treasury and society more widely. It also highlighted the potential costs of any fall in participation in higher education in England.

In this second pamphlet we explore in detail the direct costs and benefits of the higher education funding system in England agreed by Parliament in December 2010 and introduced for new entrants to universities in England from the 2012/13 academic year. The impact of these changes on universities and graduates is reviewed. We also assess the policy context and macroeconomic implications of this new funding regime.

These are wide-ranging and have received surprisingly little attention. They include higher rail fares and water bills and an increase in the cost of government borrowing as interest repayments on index-linked gilts are adjusted to take account of the uplift in the Retail Price Index triggered by higher tuition fees during the first three years of their introduction.

From an economic perspective, the new system for funding higher education in England does provide short term benefits to the Treasury, contributes to a reduction in the structural deficit and maintains funding for student numbers. However, these benefits are significantly outweighed by the costs which could be up to six and half times more in the long run than the potential Treasury savings.

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Introduction

The higher education funding system in England has changed radically. Following the May 2010 general election and the formation of a Coalition Government which pledged to eliminate the structural deficit by 2014/15, a number of changes to the higher education funding regime were proposed. These proposals were voted through Parliament in December 2010 and have been implemented for the 2012/13 cohort of undergraduate students.

The most significant changes to higher education funding at undergraduate level include:

- The removal of teaching funding provided by the Higher Education Funding Council for England (HEFCE) relating to predominantly classroom taught subjects;
- An increase in the maximum tuition fee that higher education institutions are able to charge to £9,000 per annum for full-time undergraduates, subject to an access agreement with the Office for Fair Access (OFFA);
- An increase in the scale of tuition fee loans available to cover increased undergraduate tuition fees;
- An increase in the maintenance loans and grants available to eligible full-time undergraduates;
- The introduction of tuition fee loans for eligible part-time undergraduates;
- The introduction of higher tuition fee loans for individuals studying at private institutions;
- Amendments of tuition fee and maintenance loan conditions to incorporate
  – A positive and variable real interest rate on outstanding loans (dependent on earnings);
  – An extension of the repayment period before debt write off;
  – An increase in the nominal earnings threshold before loan repayment commences; and
- The introduction of the National Scholarship Programme with matched funding from the higher education sector[1]

At a time of significant transition for the higher education sector it is vitally important to map and understand the direct costs and benefits of the new funding regime. Given the potential for unintended consequences associated with any policy change, it is also important to explore the wider macroeconomic impact of the shift from direct to indirect taxpayer funding of higher education. *'Are the changes to higher education funding in England cost-effective?'* presents the findings of modelling undertaken by London Economics and discusses the implications for individuals, the Treasury and society more widely.

[1] Note that HEFCE have announced a revised approach to the distribution of National Scholarship Programme funds in 2014-15. See http://www.hefce.ac.uk/media/hefce/content/pubs/2013/201302/HEFCE%202013-02.pdf

Approach

In order to understand these costs and benefits, London Economics have taken into account the latest information from the Labour Force Survey (graduate earnings), HEFCE (subject funding), OFFA (gross fees, fee waivers and access bursaries), the Higher Education Statistics Agency (student numbers from 2010/11) and the Department for Business, Innovation and Skills (BIS) regarding student support arrangements.

All the estimates presented combine the various resource flows between students/graduates, higher education institutions and the Treasury that occur. These include the short term resource flows when students are participating in higher education and those over the 30 year period following graduation, right up to the point that the student loans might be written off. Given that these resource flows occur at different points in time, for consistency, all resource flows have been discounted appropriately[2] and are displayed in **net present value** terms.

"Given the potential for unintended consequences associated with any policy change, it is important to explore the wider macroeconomic impact of the shift from direct to indirect taxpayer funding for higher education."

[2] Discounting is a way of consistently presenting the value of monetary amounts that occur at different points in time – see Glossary

As detailed in the first publication of this series, there has been a significant drop in undergraduate acceptances to start courses in 2012/13 in England[3].

Based on previous analyses, London Economics has factored in a **30,000** reduction in UK-domiciled undergraduate students entering English higher education institutions (HEIs) between 2010/11 and **2012/13**[4,5]. If this estimate of the decline in the student cohort proves valid, the changes in the resource flows between the Treasury, higher education institutions and students/graduates between the 2010/11 student cohort and the (smaller) 2012/13 student cohort will be as shown in Figure 1. In present value terms, this means:

> The smaller 2012/13 student cohort will contribute a total of **£1.872 billion** (in present value terms) to the cost of undertaking their degrees. This represents an increase of **£1.463 billion** on the **£409 million** contribution made by the larger 2010/11 cohort, predominantly as a result of higher tuition fees.

> The contribution from the Treasury associated with the smaller 2012/13 cohort is expected to be **£5.781 billion** compared to a contribution of **£6.947 billion** associated with the larger 2010/11 cohort. This represents a reduction of **£1.166 billion** in Treasury expenditure, which is driven primarily by the shift away from the provision of HEFCE teaching grants towards increased loan-supported tuition fees.

> Over the entire period covering the time students are engaged in higher education to the point that their student loans are potentially written off, the smaller 2012/13 student cohort is expected to contribute **24.5%** to the costs of higher education provision. This compares to a contribution of **5.6%** for the 2010/11 student cohort[6].

> Following the changes to higher education fees and funding, higher education institutions are in aggregate expected to receive approximately **£298 million** more funding for the 2012/13 cohort compared to the 2010/11 cohort, though there will be significant variation across the sector. This amount is dependent on the assumption that the overall student population for 2012/13 is 30,000 fewer than in 2010/11. The actual aggregate change in funding for higher education institutions will depend on the actual number of students[7].

Figure 1: Resoure flow changes between 2010/11 and 2012/13

2010/11

From	To: Students/ Graduates	To: Institutions	To: Exchequer	Total
Students/Graduates	NA	£3,171m	(£2,762m)	**£409m**
Institutions	(£3,171m)	NA	(£4,185m)	**(£7,356m)**
Exchequer	£2,762m	£4,185m	NA	**£6,947m**
Total	**(£409m)**	**£7,356m**	**(£6,947m)**	

2012/13

From	To: Students/ Graduates	To: Institutions	To: Exchequer	Total
Students/Graduates	NA	£7,340m	(£5,468m)	**£1,872m**
Institutions	(£7,340m)	NA	(£314m)	**(£7,653m)**
Exchequer	£5,468m	£314m	NA	**£5,781m**
Total	**(£1,872m)**	**£7,653m**	**(£5,781m)**	
Difference	**(£1,463m)**	**£298m**	**£1,166m**	

Source: London Economics' analysis (2013). All estimates are presented in present value terms. Note that figures in brackets imply a positive contribution of resources (i.e. a cost or expenditure). For instance, in the upper panel, the total contribution of 2010/11 cohort students/ graduates to the cost of their higher education stands at (£409 million), compared to a contribution of (£6.947 billion) from the Treasury. Higher Education Institutions receive this resource of £7.356 billion from the combined contributions of students/graduates and the Treasury. All results presented cover the income and expenditure incurred in both the short term and longer term (i.e. while students are engaged in higher education until the time at which their student loans might be written off 30 years following graduation).

[3] Evidence from UCAS indicates that there has been an 11% reduction in full-time undergraduate acceptances to UK higher education institutions for 2012/13 compared to 2011/12 (equivalent to 53,200 applicants) and a 13% fall in acceptances to English institutions (equivalent to 51,100 applicants). See http://www.ucas.ac.uk/documents/mediareleases/ucas_entry_year_acceptances_eoc_2012.pdf

[4] London Economics modelled the impact of changes in student support arrangements on higher education participation. In written evidence to the BIS Select Committee Inquiry into higher education fees and funding, London Economics forecast that the change in fees and funding arrangements would result in a reduction in first time undergraduates of approximately 45,000 (both full-time and part-time). http://www.publications.parliament.uk/pa/cm201012/cmselect/cmbis/885/885.pdf. In this report, we provide a more conservative estimate of the reduction in student numbers so as to provide a lower estimate of the impact of changes in fees on funding and economic outcomes.

[5] Of the estimated 30,000 reduction in undergraduate students, it is assessed that approximately 22,600 will be full-time students and 7,400 will be part-time students.

[6] The analysis suggests that for the 2012/13 cohort, the contribution of students/graduates over the 30 year period following graduation stands at 24.5%, once full account of the costs during both qualification attainment and in terms of loan repayment are calculated (i.e. after loan write-offs).

[7] Gains in funding among HEIs would be wiped out if 42,000 fewer undergraduates started courses in 2012/13, rather than the 30,000 modelled in this research.

> For the 2010/11 cohort of students, higher education institutions received approximately **57%** of their teaching income direct from the Treasury, via BIS. For the 2012/13 cohort of students, we estimate that this will have fallen to just **4%**.

Why shift expenditure from HEFCE teaching grant to student support?

One of the primary reasons that the Coalition Government settled on the approach to higher education funding in England adopted in 2010, was to reduce departmental spending (i.e. planned Departmental Expenditure Limit, known as DEL). This had the effect of assisting with its commitment to eliminate the structural deficit by 2014/15. Whilst direct HEFCE grants are counted within the Resource DEL, it is *only* the estimated value of the **Resource Accounting and Budgeting charge** (RAB) associated with student loans – rather than the total value of the loan – that is counted within the DEL[8]. The RAB charge calculates the proportion of the nominal loan value that is not expected to be repaid (in present value terms)[9]. Substituting direct HEFCE teaching funding for higher tuition fee loans in 2012/13 therefore reduces departmental expenditure by approximately 60% without reducing the number of student places available for undergraduate study.

For example, if the RAB charge is estimated to be **39.6%** and £1.0 billion of new fee loans are issued to replace a £1.0 billion reduction in HEFCE teaching grant, the Department's Resource DEL falls by **£604 million** compared to the previous DEL. In *accountancy* terms, there has been a reduction in departmental spending; however, in *economic* terms, this has simply been replaced by borrowing. As a result of the increased loan book (as well as the deterioration in the economy and the impact on graduate earnings), this borrowing now entails a significantly higher economic cost (RAB charge) to the Treasury than was the case under the previous funding system and graduate repayment mechanisms.

Detailed Treasury Costs

Breaking down the Treasury costs into the constituent elements, our analysis suggests the following:

> In present value terms, the Treasury will contribute **£1.166 billion** *less* to the funding of the 2012/13 cohort of students overall compared to the 2010/11 cohort of students.

> Breaking this estimate down, the Treasury will experience increased costs as a result of increased eligibility for *maintenance grants* (which will cost the Treasury approximately **£232 million** more for the 2012/13 cohort than the 2010/11 cohort).

[8] The actual volume of new student loans issued is included within the Capital Annually Managed Expenditure (AME) item of the Departmental accounts (termed a financial asset).

[9] Non-repayment, under the current student support regime, occurs as a result of: the potential interest rate subsidy; low earnings; debt forgiveness after 30 years; or in the case of permanent disability; or death.

> More importantly, the write offs on full-time student *fee and maintenance loans* will cost approximately **£2.418 billion** more for the 2012/13 cohort compared to the 2010/11 cohort (an increase from **£1.678 billion** in 2010/11 to **£4.096 billion** in 2012/13). The biggest item of expenditure for the Treasury associated with the funding of higher education will be the maintenance and fee loan subsidy/write-off (the RAB charge).

> Against these increases in costs, the primary saving or reduction in expenditure achieved by the Treasury results from the **£3.871 billion** reduction of HEFCE teaching funding between the 2010/11 and 2012/13 cohorts of students. The Treasury will also make some additional savings as a result of the reduction in the number of students that are likely to enter higher education following the increase in tuition fees.

> In terms of student support for part-time students[10], we have estimated that the removal of part-time fee and course grants between 2010/11 and 2012/13 will save the Treasury approximately **£55 million**, while the introduction of part-time fee loans is expected to *generate* **£33 million** from the 2012/13 part-time student cohort for the Treasury[11].

[10] The number of first time part-time undergraduates in 2010/11 was 54,612 compared to the modelling estimate of 47,243 in 2012/13.
[11] The income generation associated with part-time tuition fee loans is as a result of the positive real interest rate on tuition fee loans combined with the fact that part-time students are generally older than full-time students, and given their employment status, more likely to immediately commence repaying loans (resulting in a negative RAB charge).

Under the previous system of higher education fees and funding the RAB charge for the cohort entering higher education in 2010/11 was estimated by London Economics to be 26.1%[12] on **£6.42 billion** of maintenance and fee loans.

In other words, it was thought that the government would recoup 73.9% or **£4.74 billion** of the initial investment made for this cohort over 25 years.

Despite the imposition of a positive real interest rate on loans and the extension of the repayment period to 30 years, the new funding system involves a significantly higher RAB charge. The increase in the tuition fee cap and simultaneous increase in the size of loans to students, and to a lesser extent, the more generous maintenance loan provision, means that the loan book for the (smaller) cohort of students entering higher education in 2012/13 has increased significantly to approximately **£10.35 billion**.

[12] This compares to an official estimate generated by the Department for Business, Innovation and Skills of 26.9%.

The RAB charge
continued

Based on graduate earnings profiles (from the Labour Force Surveys) and the administrative information relating to the criteria for repayment of loans, **our estimate of the RAB charge for the 2012/13 cohort stands at approximately 39.6%**[13]. **This implies that for every £1,000 in loans that are provided by the government, approximately £604 would be expected to be repaid (in present value terms) with the remaining £396 being 'lost' to the Treasury as a result of write-offs and subsidies**[14]. Of the *extra* loans now provided by the Treasury as a result of higher fees (i.e. **£3.93 billion**), the RAB charge associated with these loans stands at **62%**, meaning that just over one-third of these extra loans are expected to be recouped[15].

Whilst London Economics estimates the RAB charge associated with the new funding regime at **39.6%**, the latest BIS estimate is for a RAB charge of 32%[16]. The difference between these estimates is important because BIS periodically undertakes an assessment of the extent to which previously predicted and actual student loan repayments coincide.

If there are significant differences between the previous model predictions and actual outcomes, then BIS amends its forecast of the cost of carrying student loans.

If, following a future assessment, it transpires that the RAB charge is now estimated to be higher than the current BIS estimate of 32% then an *impairment* will be registered on BIS's annual accounts as an additional item of expenditure. **This implies that public sector borrowing will have to increase to accommodate this increased expenditure or, if additional borrowing is to be avoided, that expenditure cuts elsewhere will have to be made**. In 2010-11, for instance, almost £2.5 billion in impairment costs (and further provisions for impairments) were included as a component of BIS departmental expenditure for a range of reasons. These included revisions relating to (worse) graduate earnings and employment outcomes, the Bank of England base rate, and higher than forecast Retail Price Index.

Table 1: Expected Treasury funding of higher education by cohort

	2010/2011	2012/13	Change
FT Maintenance grants	£1,027m	£1,259m	£232m
FT RAB Maintenance loan charges	£870m	£1,298m	£428m
FT RAB Fee loan charges	£808m	£2,798m	£1,989m
PT fee grant	£31m	£0m	(£31m)
PT course grant	£24m	£0m	(£24m)
PT RAB charges	£0m	(£33m)[17]	(£33m)
National Scholarship Fund	£0m	£47m	£47m
Total Student Support	**£2,760m**	**£5,369m**	**£2,609m**
FT HEFCE grant	£3,849m	£292m	(£3,557m)
PT HEFCE grant	£335m	£22m	(£314m)
Total HEFCE funding	**£4,185m**	**£314m**	**(£3,871m)**
Total Treasury Funding	**£6,945m**	**£5,682m**	**(£1,262m)**

Source: London Economics' analysis (2013). Note that the estimate of student support in 2012/13 does not include approximately £100 million in expenditure associated with the support provided to students attending private institutions. The incorporation of this expenditure results in the aggregate estimates presented in Figure 1.

[13] Note that the recent estimate of the RAB charge under the new system of fees and funding produced by the Institute for Fiscal Studies stands at 33%, which represents an 8 percentage point increase on the previous system of student finance. http://www.fsmevents.com/ifs/june2012/3-Haroon%20Chowdry/onDemand.html However, the IFS has also estimated a RAB charge based on lower earnings growth which stands at 37%, which is equivalent to the most recent estimate generated by the Higher Education Policy Institute http://www.hepi.ac.uk/455-2094/The-cost-of-the-Government%E2%80%99s-reforms-of-the-financing-of-higher-education.html.

[14] Updating the London Economics model as a result of the economic recession and reduced earnings levels in the economy has added approximately 2.5 percentage points to the RAB charge, equivalent to an additional loan subsidy of **£240 million** for the 2012/13 cohort. It is also noteworthy that the proportion of students in receipt of means tested maintenance grants has increased from 33% of the cohort to approximately 40% of the cohort as a result of the changes in funding arrangements.

[15] Given the extent to which these additional loans will never be repaid, this approach of replacing direct funding to universities with the alternative approach of allocating resources indirectly to universities via students as intermediaries demonstrates substantial inefficiencies.

[16] BIS (2012) 'Guide to the simplified student loan repayment model (beta version, August 2012).

[17] The model predicts that the Treasury will generate £33 million in revenues from the provision of fee loans to part-time students. The reason for this is that part-time students are generally older than full-time students and also more likely to be combining employment with study. As such, information from the Labour Force Survey suggests that these students are quicker to enter into loan repayment (which incur a positive interest rate), and less likely to have the loans written off at the end of the 30 year period.

Impact of higher fees and funding on graduates

Combining the up-front costs of higher tuition fees, all forms of student support (grants and bursaries), as well as the longer term subsidies and write offs on fee and maintenance loans in the 30 years following graduation, first time undergraduates entering higher education in 2012/13 will contribute approximately **£1.463 billion** more in present value terms than undergraduate students entering higher education in 2010/11.

The additional subsidies/write-offs that may potentially be available from the increased volume of loans and marginally increased grants will be dwarfed by the increase in tuition fee costs. In addition, our modelling suggests that there could be 30,000 fewer HE entrants in 2012/13 compared to 2010/11.

Looking at predicted graduate earnings profiles, broken down by deciles (where the 1st decile represents those graduates with the lowest earnings levels and the 9th decile represents those with the highest earnings), the analysis indicates that the RAB charge overall will increase by approximately **13.4 percentage points** (from 26.1% to **39.6%**). In other words, although graduates will pay back the interest and capital on their loans for a longer period, the fact that the size of the loans has increased means that a higher proportion will be written off than is currently the case.

There are important gender and distributional effects, as shown in Figure 2. On average, following the significant increase in the volume of loans available and the change to the loan repayment mechanism, the RAB charge for male graduates[18] increases from **19.5% to 22.5%**[19]. This means that a greater proportion of loans will be written off at the end of the 30 year period than under the previous higher education funding system.

[18] HESA data indicates that approximately 45% of full-time undergraduates are male, compared to 39% of part-time students.

[19] The government has some control over the RAB charge and the potential RAB charge according to different levels of graduate earnings. Specifically, the government can amend a number of features relating to the student loan repayment mechanism, including the interest rate charged on loans, without the need for introducing amendments to current legislation (See 2011 Education Act http://www.legislation.gov.uk/ukpga/2011/21/part/9/enacted?view=interweave.)

Figure 2: Graduate repayment profile changes between 2010/11 and 2012/13 by cohort (full-time)

Change in RAB Charge	**13.4pp**
Males	FT
1st decile	60.8 pp
2nd decile	35.3 pp
3rd decile	10.7 pp
4th decile	-8.8 pp
5th decile	-11.4 pp
6th decile	-12.9 pp
7th decile	-14.6 pp
8th decile	-16.0 pp
9th decile	-17.2 pp
Change RAB	**3.0 pp**
Females	FT
1st decile	9.7 pp
2nd decile	44.1 pp
3rd decile	67.3 pp
4th decile	54.0 pp
5th decile	37.7 pp
6th decile	20.1 pp
7th decile	-1.5 pp
8th decile	-15.6 pp
9th decile	-16.3 pp
Change RAB	**22.2 pp**

Change in outstanding amount	
Males	FT
1st decile	£35,505
2nd decile	£23,774
3rd decile	£11,648
4th decile	£291
5th decile	£0
6th decile	£0
7th decile	£0
8th decile	£0
9th decile	£0
Change	**£7,913**
Females	FT
1st decile	£19,250
2nd decile	£30,149
3rd decile	£37,136
4th decile	£31,998
5th decile	£25,522
6th decile	£18,086
7th decile	£7,596
8th decile	£11
9th decile	£0
Change	**£18,861**

Additional years of repayment	
Males	FT
1st decile	6.0
2nd decile	11.0
3rd decile	13.0
4th decile	15.0
5th decile	14.0
6th decile	12.0
7th decile	11.0
8th decile	9.0
9th decile	8.0
Change	**11.0**
Females	FT
1st decile	0.0
2nd decile	0.0
3rd decile	5.0
4th decile	10.0
5th decile	12.0
6th decile	14.0
7th decile	16.0
8th decile	17.0
9th decile	14.0
Change	**10.9**

Source: London Economics' analysis. It is assumed that full-time students potentially commence repayment at the age of 22.

Impact of higher fees and funding on graduates
continued

For individuals, the RAB charge is determined largely by graduate earnings. The lowest earning male graduates are expected to see the greatest change in the proportion of the loan written off: the RAB charge for men in the lowest earnings decile will increase by **61 percentage points** from **29%** to **90%** so that 90% of the loan is written off at the end of the 30 year period compared to 29% for the 2010/11 cohort. However the RAB charge amongst male graduates with average earnings is expected to decrease from **18.7%** to **7.4%** and from **12.9%** to **-4.2%** amongst men in the top earnings decile. High earning men will pay back more than they borrowed following the imposition of a staggered positive real interest rate based on earnings[20].

The analysis also suggests that following the change in fees and funding, the average *increase* in the amount of borrowing outstanding for men at the time of write-off will be **£7,913** compared to zero for the 2010/11 cohort. Relative to the 2010/11 cohort where **all** male graduates would be expected to repay the full amount of their loan, in 2012/13, this would be expected to decline to approximately **60%** of the cohort. Despite the lower incidence of full repayment, the average increase in the number of years for which graduates will be attempting to pay off their loans will increase by **11 years**, with lower earning male graduates repaying for the greatest additional length of time.

Given the different labour market outcomes of female graduates, a slightly different picture emerges for women. The analysis indicates that the average proportion of fee and maintenance loans that will not be recovered will increase by **22.2 percentage points** (from **31.6%** to **53.8%**), which means that the majority of money loaned to female students in the 2012/13 cohort will not be repaid in full.

"In total, £2.798 billion worth of tuition fee loans and £1.298 billion of maintenance loans provided to the smaller 2012/13 cohort of students are expected to be written off over a 30 year period."

[20] For the highest earning graduates, the reduction in the RAB charge is associated with the introduction of the positive real interest rate (which is mean tested). For those graduates on or around average earnings, the reduction in the RAB charge is as a result of both the positive real interest rate but also the extended repayment period (from 25 to 30 years).

For low earning female graduates there will be a 10 percentage point increase in the RAB charge from **90%** to **100%**): the entirety of these loans will be written off at the end of the 30 year period due to the increase in the earnings threshold for loan repayments from £15,000 in 2010/11 prices to £21,000 in 2015/16 prices. The greatest change in the proportion of the loan written off will occur amongst female graduates in the 2nd to 6th earnings deciles: for these graduates the level of the loan write-off increases by **44 percentage points** (pp), **67 pp**, **54 pp**, and **38 pp** respectively.

It is only in the top three earnings deciles that female graduates in the 2012/13 cohort will receive a smaller subsidy, ranging between **1 and 16 percentage points.**

Following the changes in fees and funding, the average *increase* in the amount of borrowing outstanding at the time of write-off stands at almost **£19,000** (an increase from approximately **£3,000** for the 2010/11 cohort to **£22,000** for the 2012/13 cohort). Compared to the 2010/11 cohort where **30%** of females would not be expected to repay the full amount of their loan, for the 2012/13 cohort, this would be expected to increase to approximately **80%**.

In total, £2.798 billion worth of tuition fee loans and £1.298 billion of maintenance loans provided to the smaller 2012/13 cohort of students are expected to be written off over a 30 year period, compared to £808 million and £870 million in write-offs for the larger 2010/11 cohort of students.

At an individual level, the average student will contribute approximately **£4,500** more for their higher education under the new system of fees and funding, as outlined in evidence presented to the BIS Select Committee Inquiry by London Economics[21]. Individuals from middle-income background (household income of approximately £42,000) who go on to achieve above average earnings (7th to 9th decile) will see the greatest increase in costs (approximately £15,000 – £21,000); individuals from low income backgrounds (household income of approximately £25,000) who go on to achieve below average earnings (1st to 3rd decile) will see the greatest reduction in costs (approximately £6,000 – £9,000).[22]

[21] http://www.publications.parliament.uk/pa/cm201012/cmselect/cmbis/885/885.pdf

[22] When considering the progressivity of higher education fees and funding both student origin and graduate outcomes need to be taken into account. This is due to eligibility for tuition fee, maintenance grant, bursaries and other forms of support being determined by household income, while loan repayments, interest payments, and write-offs are determined by graduate earnings.

Impact of higher fees and funding on graduates
continued

Figure 3: Graduate repayment profile changes between 2010/11 and 2012/13 by cohort (part-time)

Change in RAB Charge	**-7.5pp**
Males	PT
1st decile	31.5 pp
2nd decile	-19.5 pp
3rd decile	-25.4 pp
4th decile	-30.2 pp
5th decile	-36.3 pp
6th decile	-41.8 pp
7th decile	-46.0 pp
8th decile	-50.8 pp
9th decile	-49.5 pp
Change RAB	**-29.8 pp**
Females	PT
1st decile	96.3 pp
2nd decile	84.5 pp
3rd decile	47.6 pp
4th decile	7.0 pp
5th decile	-16.3 pp
6th decile	-22.1 pp
7th decile	-25.9 pp
8th decile	-31.5 pp
9th decile	-40.6 pp
Change RAB	**11.0 pp**

Change in outstanding amount	
Males	PT
1st decile	£12,216
2nd decile	£0
3rd decile	£0
4th decile	£0
5th decile	£0
6th decile	£0
7th decile	£0
8th decile	£0
9th decile	£0
Change	**£1,357**
Females	PT
1st decile	£25,376
2nd decile	£23,163
3rd decile	£14,887
4th decile	£5,072
5th decile	£3
6th decile	£0
7th decile	£0
8th decile	£0
9th decile	£0
Change	**£7,611**

Additional years of repayment	
Males	PT
1st decile	30.0
2nd decile	18.0
3rd decile	14.0
4th decile	12.0
5th decile	11.0
6th decile	10.0
7th decile	9.0
8th decile	8.0
9th decile	5.0
Change	**13.0**
Females	PT
1st decile	30.0
2nd decile	30.0
3rd decile	30.0
4th decile	30.0
5th decile	21.0
6th decile	18.0
7th decile	15.0
8th decile	13.0
9th decile	10.0
Change	**21.9**

Source: : London Economics' analysis. It is assumed that part-time students potentially commence repayment at the age of 36

Impact on Higher Education Institutions

Part-time student loans

We have also undertaken the equivalent analysis for eligible part-time students following the extension of fee loans to these students for the first time. Unlike the loans provided to full-time students, these loans are likely to generate revenue for the Treasury. This surprise finding, shown in Figure 3, reflects the smaller size of the loans[23], the positive real interest rate charged on them and the fact that part-time students often combine work and study and therefore achieve earnings in excess of the repayment threshold.

The analysis (see Figure 3) suggests that the RAB charge associated with fee loans for graduates completing part-time study stands at **-7.5%** (**-29.8%** for males and **+11.0%** for females). Only the lowest 10% of male graduates will not repay the full balance of the loan and accumulated interest (with an average outstanding balance of **£12,216**), while the corresponding proportion of women stands at **40%**. The average number of years in repayment stands at **13** years for men and approximately **22** years for women.

[23] Part-time students studying at a rate of at least 25% of a full-time course are eligible for tuition fee loans under the new higher education funding system but remain ineligible for maintenance loans and grants.

Despite the anticipated 30,000 reduction in undergraduate enrolments in 2012/13, the analysis indicates that gross tuition fee income from full-time students will increase by **£4.022 billion** (from **£3.091 billion** to **£7.113 billion**) and by **£455 million** for part-time students (from **£175 million** to **£630 million**).

Although an additional **£308 million** will be spent on matched National Scholarship Programme funding and Access Bursaries (minus the previous mandatory bursaries), this implies that net fee income will increase by **£4.169 billion** between cohorts.

Against this increase, the analysis estimates that there will be a reduction in HEFCE teaching grant by **£3.871 billion** (**£3.357 billion** for full-time students and **£314 million** for part-time students). This leaves higher education institutions approximately **£298 million** better off, albeit with significant variation across the sector. This is also dependent on the assumptions made in relation to the reduction in student numbers that actually occurs: these gains would be wiped out if 42,000 fewer undergraduates started courses in 2012/13, rather than the 30,000 modelled in this research.

Impact on Higher Education Institutions
continued

Table 2: Income received by higher education institutions by cohort

	2010/2011	2012/13	Change
Full-time students			
Fees (net of fee waivers/scholarships)	£3,091m	£7,113m	£4,022m
Mandatory bursaries	(£96m)	£0m	£96m
NSP borne by Institutions	£0m	(£47m)	(£47m)
Access Bursaries (not including fee waivers/scholarships)	£0m	(£356m)	(£356m)
Net fee income	**£2,996m**	**£6,710m**	**£3,714m**
HEFCE grant	£3,849m	£292m	(£3,557m)
Total funding associated with FT students	**£6,557m**	**£6,716m**	**£159m**
Part-time students			
Fees	£175m	£630m	£455m
HEFCE grant	£335m	£22m	(£314m)
Total funding associated with PT students	**£510m**	**£652m**	**£141m**
Total	**£7,356m**	**£7,653m**	**£298m**

Source: London Economics' analysis. Note that figures may not sum exactly as a result of rounding.

"Any gains to higher education institutions will be subject to significant variation across the sector and would be wiped out if 42,000 fewer undergraduates started courses in 2012/13."

Trading off the costs and benefits of the HE student funding reforms

In *What's the value of a UK degree?* we identified a number of outcomes associated with a 30,000 reduction in the size of a cohort entering higher education for the first time in 2012/13. Reduced participation in 2012/13 will, over the next 40 years, reduce the economic benefits associated with degree level attainment by **£3,001 million** (as a result of lower earning and employment outcomes) and reduce the Treasury benefits by **£2,360 million** (as a result of lower taxation receipts).

In addition, the smaller cohort of undergraduates in 2012/13 automatically reduces the size of the future pool of postgraduate students. Assuming that approximately one in four undergraduates complete their degrees and undertake postgraduate degrees within six months of graduating[24], the 30,000 reduction in the size of the undergraduate cohort would result in a reduction in the earnings and employment benefits for those acquiring postgraduate degrees by **£444 million** and a reduction in the Treasury benefits associated with postgraduate degree level attainment by **£463 million**.

These direct effects would result in a combined reduction in economic benefits to the UK of approximately **£6,268 million**[25], which is over **5½** times the expected Treasury savings that might result from both the funding changes and change in the size of the cohort resulting from these funding changes. From an economic perspective, the short term benefits expected to be achieved by the Treasury are significantly less than the long term economic costs associated with the expected decline in higher education qualification attainment.

There are a range of additional impacts that must also be considered when weighing up the costs and benefits of this policy change. One area not widely debated at the time when the changes in fees and funding were agreed, relates to the impact of raising tuition fees on inflation, in particular on the Consumer and Retail Price indices.

[24] Based on the Destinations of Leavers from Higher Education six months following the completion of their undergraduate degree http://www.hesa.ac.uk/index.php?option=com_content&task=view&id=1899&Itemid=239

[25] Note that in this analysis we have not incorporated the potential impact of higher fees on educational exports (**£329 million**).

Trading off the costs and benefits of the HE student funding reforms
continued

The Consumer Price Index (CPI)

When measuring inflation, the Office for National Statistics collects price information on a monthly basis on a range of goods and services consumed across the economy. The 'education' component of the CPI basket accounts for **1.9%**[26] of the total inflation basket and is further broken down to cover UK tuition fees, tuition fees for international students, the fees associated with evening classes and independent school fees. UK tuition fees made up **0.646%** of the overall inflation basket in 2012[27].

Based on the available ONS information on basket weights, our calculations suggest that **the increase in tuition fees will have 0.24 percentage point impact on the headline inflation rate**[28]. This is based on an average tuition fee of **£8,234**[29] (after fee waiver) and the assumption that the new fee regime will apply to **36.6%**[30] of students in 2012. **In other words, whereas CPI inflation may have been 2.50% in the absence of a tuition fee increase, the tuition fee increase will result in an inflation rate of 2.74%**.

What does higher than expected inflation mean?

The government makes a number of payments that are directly linked to inflation. Public sector and state pensions for example are linked with CPI. Social welfare benefits (including Income Support, Child Benefit, Disability Living Allowance, Jobseekers Allowance, maternity and paternity benefits) and tax credits (Working Tax Credit and Child Tax Credit) have until recently been directly linked to inflation. From April 2013, many benefits will no longer be index-linked. There are also far reaching effects on consumers where costs are regulated using some measure of inflation (either via the Consumer or Retail Price Index). These include the higher cost of second-class stamps (which is CPI-indexed[31]), higher regulated rail fares, higher water bills (RPI-indexed), and the repayment of student loans, amongst others[32].

Despite the cap on *working-age* benefits agreed by Parliament in January 2013 (thereby eliminating the potential additional expenditure on tax credits and welfare payments)[33], we have calculated that the **0.24 percentage point** effect on CPI would result in additional Treasury payments on *non-working age* benefits of **£42 million** on public sector pensions, and **£163 million** on state pensions[34]. Against these increases in expenditure, we have estimated that the Treasury would generate an *additional* **£20 million** in revenue as a result of increased alcohol and cigarette duties (which are index linked). **The inflationary effect of increased tuition fees on non-working age welfare payments minus the revenue gains from higher excise duties amounts to approximately £185 million of additional Treasury expenditure in 2012/13**[35].

The cost of borrowing

More importantly, a proportion of the government's costs of borrowing are directly related to the Retail Price Index. Specifically, the interest repayments on index-linked gilts adjust in line with the RPI (with a three-month lag). The government has issued **£294 billion** in index-linked gilts[36] so a small change in their interest rate has large effects on interest payments.

Based on original analysis undertaken by the Office of Budget Responsibility, a rise in the Retail Price Index of 0.22 percentage points would cost the government £655 million in additional interest payments in the first year of higher tuition fees (2012/13)[37]. This is easily the largest contribution to the inflation related costs borne by the Treasury, as a result of the introduction of higher tuition fees.

In total, the combined impact of inflation on additional borrowing costs and non-working age benefit payments and the cost associated with the initial introduction of higher tuition fee exceeds **£0.840 billion**. **Given that these fees would be implemented over three cohorts of students, we would also expect to see further inflationary effects in 2013/14 and 2014/15 that are of similar magnitude *unless* the government takes action to counter these inflationary shocks**. The inflationary effect of raising tuition fees on the Consumer and Retail Price indices is not a single year phenomenon, but rather one that will be repeated until the 2012/13 cohort of students leaves university.

[26] CPI weighting framework 2012. Available from ONS website: http://www.ons.gov.uk/ons/index.html
Link to framework: http://bit.ly/ZBPnoM UK undergraduate fees: item 440239
[27] *ibid*
[28] Using a similar methodology, the Retail Price Index will increase by 0.22 percentage points more than would otherwise be the case.
[29] Higher Education Policy Institute (2012), "The cost of the government's reforms to the financing of higher education", Annex B. Available from: http://www.hepi.ac.uk/455-2094/The-cost-of-the-Government%E2%80%99s-reforms-of-the-financing-of-higher-education.htmls

[30] *ibid*
[31] http://media.ofcom.org.uk/2012/07/20/ofcom-extends-royal-mail-safeguard-cap-to-protect-vulnerable-consumers/
[32] Inflation has far reaching consequences, many of which are difficult to estimate. In particular, in the housing market, many rental contracts (both social housing and private renters) have clauses up-rating the rent paid by the level of inflation. These are not considered here.

[33] Future governments will have to decide whether to maintain this approach or restore index-linking.
[34] In addition to these Treasury effects, we have estimated that the increased inflation rate will have consequences on a range of consumer purchases that are in the regulated industries (where price setting is linked to inflation). These include an expected increase of **£7.3 million** on higher rail fares, **£9.6 million** on higher water bills and **£2.3 million** on increased stamp prices.

[35] This estimate is based on the additional pension costs (**£42 million** plus **£163 million** minus the additional excise duties generated (**£20 million**).
[36] Debt Management Office website http://www.dmo.gov.uk/, total index-linked gilts in issue: "Nominal including inflation uplift" from http://bit.ly/11cdjj2, Accessed 7 January 2013.
[37] As with any change in the carry cost of the student loan book (RAB Charge) and subsequent impairment, this additional expenditure would need to be funded through additional borrowing or cost savings generated elsewhere in the economy.

Conclusion – comparing costs and benefits

The funding system for higher education adopted by the Government seeks to retain the number of funded student places and helps to reduce the structural deficit by cutting departmental spending associated with the Department of Business, Innovation and Skills by approximately 60%.

Our analysis suggests that in present value terms, the Treasury will contribute **£1.166 billion** *less* to the funding of the smaller 2012/13 cohort of students overall compared to the 2010/11 cohort of students. This saving is achieved primarily by the shift away from the direct provision of HEFCE teaching grants to higher education institutions to increased loan-supported tuition fees.

However, these benefits must be considered alongside the costs of the new system. While in accountancy terms departmental spending has been reduced, in economic terms this has been replaced by borrowing. Over the long-term, the much larger student loan book created under the 2012 system will incur greater costs to the Treasury as a much higher percentage of this student loan book will be written-off. There are also long-term costs associated with the reduction in the number of undergraduates studying at university in 2012/13. These include **£3.001 billion** and **£0.444 billion** in reduced expected earnings and employment outcomes (at undergraduate and postgraduate level respectively) and **£2.360 billion** and **£0.463 billion** in lost taxation revenues at undergraduate and postgraduate level respectively. Other costs include **£0.840 billion** in additional payments linked to inflation and increased borrowing costs, such as the repayments on index-linked gilts.

Overall, the short term benefits expected to be achieved by the Treasury (and by inference the taxpayer) are significantly less than the economic costs in the long run. **When all these factors are taken into account, the combined costs of increasing higher education fees is estimated to be almost 6½ times as great as the potential Treasury expenditure savings.**

Glossary of terms

Present Value (PV)
The *present value* is defined as the discounted value of a stream of payments made or received in the future, taking into consideration a specific interest or discount rate (see below). The present value represents a series of future cash flows expressed in today's money terms.

Net Present Value (NPV)
The *net present value* is defined as the present value of the benefits minus the present value of the costs associated with a particular activity.

Resource and Accounting Budget charge (RAB charge)
The size of the Treasury maintenance and fee loan subsidy is measured by the *Resource Accounting and Budgeting* charge (RAB), which calculates the proportion of the nominal loan value that would not be expected to be repaid (in present value terms). Under the current student support regime, non-repayment occurs as a result of the interest subsidy; low earnings; debt forgiveness after 30 years; or in the case of permanent disability; or death. Based on graduate earnings profiles (from the Labour Force Surveys) and the administrative information relating to the criteria for repayment of loans, our estimates of the RAB Charge stand at approximately 39.6%, which implies that for every £1,000 in loans that are provided by the government, approximately £604 would be expected to be repaid (in present value terms) with the remaining £396 being 'lost' to the Treasury as a result of write-offs and subsidies.

Total Managed Expenditure
Total Managed Expenditure (TME) is made up of two components: the Departmental Expenditure Limit (DEL) and Annually Managed Expenditure (AME). The DEL is set annually within the context of the Department's three-year Spending Review Settlement and AME is set in consultation with HM Treasury through twice-yearly reviews.

Departmental Expenditure Limit
The DEL can be largely controlled by the Department, though some elements may be demand-led. It is set annually within the context of the Department's three year financial settlement determined in the Spending Review.

Annually Managed Expenditure
Departmental Annually Managed Expenditure, which is demand-led and volatile and therefore, difficult to predict. The majority of BIS's AME expenditure relates to Student Loans, the Post Office Working Capital loan and the Redundancy Payments Service (which is funded by the National Insurance Fund).

Total Departmental Spending
Total departmental spending is the sum of the resource budget and the capital budget less depreciation. Similarly, total DEL is the sum of the resource budget DEL and capital budget DEL less depreciation in DEL. Total AME is the sum of resource budget AME and capital budget AME less depreciation in AME.

Discount rate
The discount rate measures the time value of money. According to the HM Treasury *Green Book*, due to the fact that individuals prefer to receive goods in the present rather than in the future, an adjustment for time preferences needs to be incorporated into any analysis where flows of resources are occurring at different points in time. According to HM Treasury, "the discount rate is used to convert all costs and benefits to 'present values', so that they can be compared. To reflect time preferences, the recommended discount rate is 3.5% (in real terms). Calculating the present value of the differences between the streams of costs and benefits provides the net present value (NPV) of an option. The NPV is one of the primary criterion for deciding whether government action can be justified".

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